

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.



RESERVE
aSB123
.A145

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

1970 ANNUAL REPORT
OF

PLANT MATERIALS CENTER

COFFEEVILLE, MISSISSIPPI

PART I



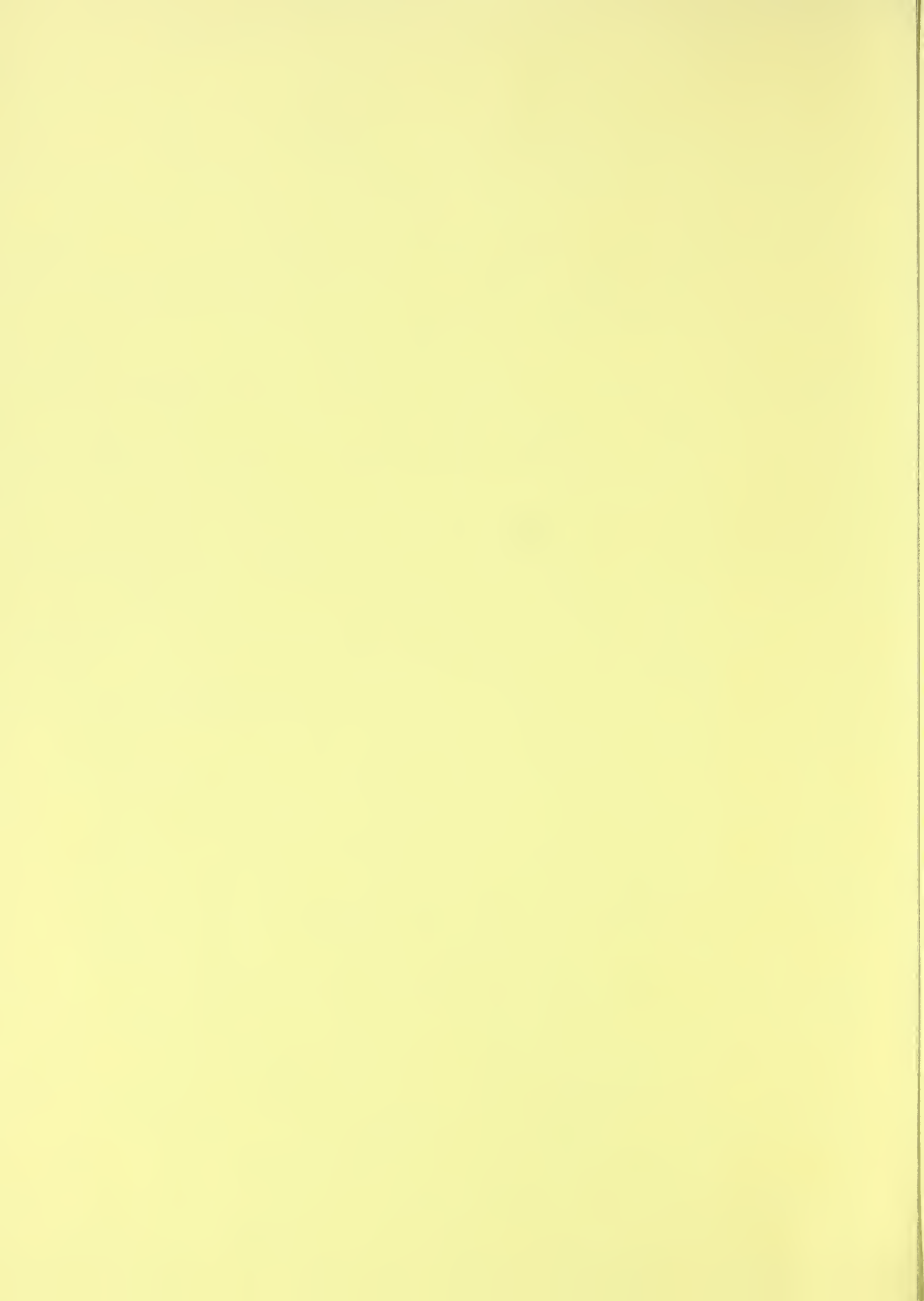
U.S. DEPT. OF AGRICULTURE
NAT. LIBRARY
5-71
C. S. SMITH LIBRARY

T. A. BOWN
PLANT MATERIALS SPECIALIST

W. C. YOUNG
REGIONAL
PLANT MATERIALS SPECIALIST

B. B. BILLINGSLEY, JR.
PLANT MANAGER

W. L. HEARD
STATE CONSERVATIONIST



Organization of the
Soil Conservation Service
Plant Materials Center
Coffeeville, Mississippi

Plant Materials Center Staff

B. B. Billingsley, Jr.,	Manager
J. H. Adams	Supervisory Biological Technician
Lillian J. Stebbing	Clerk Stenographer
Oscar L. Chandler	Farm Equipment Operator
Fred W. Jackson	Farm Equipment Operator
Jimmie Miller	Nursery Worker
James Smith	Nursery Worker



COFFEEVILLE PLANT MATERIALS CENTER

ANNUAL TECHNICAL REPORT

1970

This report covers the technical activities of the Coffeeville Plant Materials Center for the calendar year, 1970.

The Coffeeville Plant Materials Center is located approximately seven miles west of Coffeeville, Mississippi on the Tillatoba Road. It is situated in the loessial soil resource area and comprises about 195 acres of land leased from the U. S. Forest Service. The principal soils are:

Waverly - Poorly drained acid bottom land with 0-2 percent slope.

Grenada silt loam - Moderately well drained upland soil with gentle-to-steep slope. Erosion is moderate to severe.

Callaway silt loam - Somewhat poorly drained upland soil, nearly level to gently sloping. Erosion is slight to moderate.

Lesser amounts of other soils also occur there, giving varying soil conditions on which plants can be tested.

Weather Summary

Winter temperatures of 1969 - '70 reached below normal readings for this location. A cold period in early January, 1970, had a 0 degree F. reading, with temperatures near 0 for four consecutive nights. Daytime temperatures were in the teens to low twenties. Drier than usual conditions, coupled with this cold, caused severe winter injury to many plants.

A monthly rainfall chart is listed below:

January	2.19 inches	May	1.25 inches	September	.74 inches
February	4.53 "	June	4.65 "	October	8.74 "
March	7.72 "	July	3.63 "	November	3.11 "
April	11.14 "	August	4.39 "	December	5.38 "

Total rainfall for the year, 57.44 inches.

Rainfall for October was considerably above normal. Distribution of rainfall during October was such that much of the field work at the Center was severely hampered during this period.

I. Assembly of Plant Materials

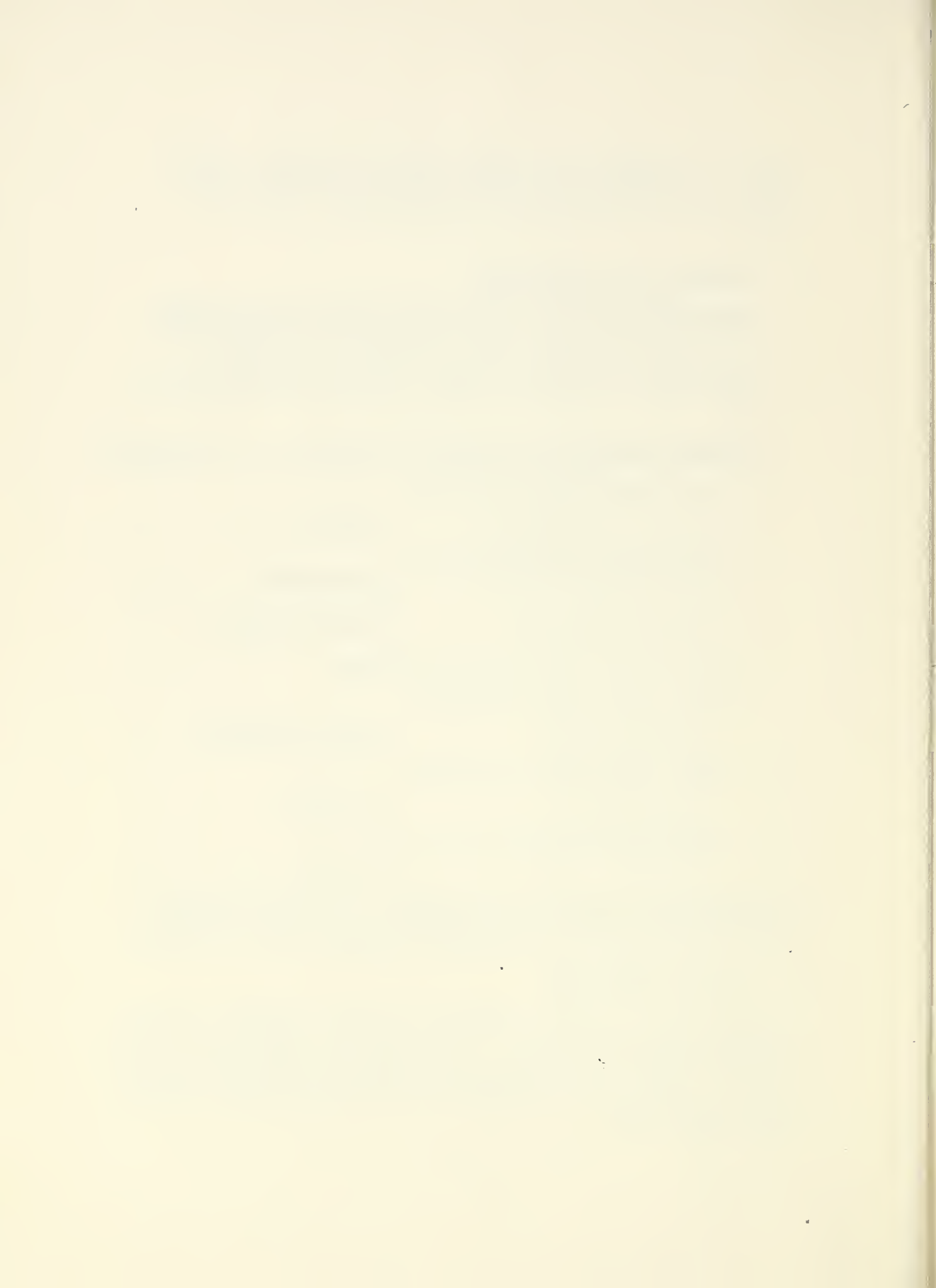
Three hundred one accessions of new plants were received at the Center in 1970. The following list includes groups of 15 or more closely related accessions which will be observed for potential to solve a common conservation problem.

<u>Principal Conservation Problem(s):</u>	<u>Species</u>	<u>No. Acc'ns.</u>
1. Cool season forage production and/or erosion control	<u>Agropyron</u>	28
2. Cool season forage production and/or erosion control	<u>Brachypodium</u>	34
3. Wildlife food plant	<u>Eleusine coracana</u>	15
4. Cool season forage production:	<u>Lotus</u>	19
5. Warm season forage production in blackland area	<u>Panicum coloratum</u>	23
6. Warm season forage production in blackland area	<u>Pennisetum</u>	15
7. Conservation-beautification and/or erosion control	<u>Rudbeckia</u>	44

Other accessions of plants were received at this Center in 1970, but they were in groups of less than 15. All plants received will be carried through the initial evaluation stage of testing.

II. INITIAL EVALUATIONS

All accessions of plants received are carried through the initial evaluation stage of testing. This consists of planting in a suitable site during the proper season of the year. Those that germinate, or survive the transplanting as the case may be, are given good cultural care.



They are observed for at least three years, unless they die before then. Notes regarding disease, insect and winter injury, seedling vigor, forage production, and other characteristics, are made. Plants showing good potential are carried into the advanced observational stage of testing.

III. ADVANCED EVALUATIONS

Advanced evaluations are designed to get specific information about plants which have shown promise during the initial evaluation stage of testing. The following are advanced evaluations which are being carried out in 1970:

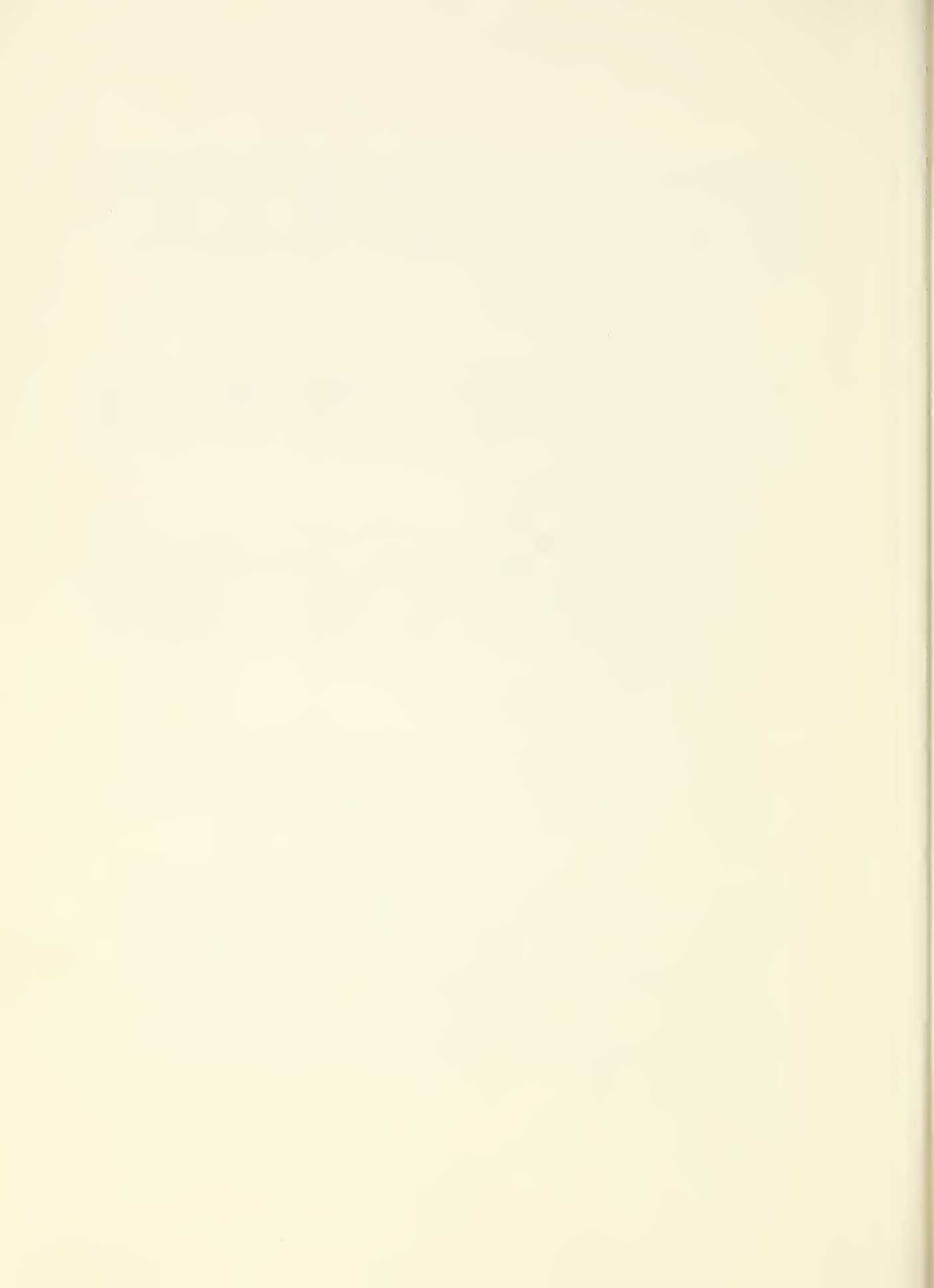
1. Hemerocallis spp., Daylily

Daylilies are perennial plants capable of producing good ground cover and attractive blossoms in season, all with little care. Eleven accessions were compared for vigor, rates of spread, density of ground cover, beauty of blossoms, etc. MS 2165, which is in an increase production field, appears to be the best all-round accession.

2. a. Panicum hemitomon, Maidencane

Nine accessions were compared for rate of spread, height, density of stand, etc.,. There is considerable variation in the group but MS 2138, which is being increased, seems to have the most potential as a streambank erosion control plant.

- b. A test designed to determine (1) the best month(s) to plant and (2) whether shipping is detrimental to maidencane, was continued in 1970. Plantings were to be made for 24 consecutive months. Rhizomes were dug, - some were planted immediately; others were packaged as for shipment. Plantings of the packaged material were made after 24 and 48 hours of holding in a warehouse. Data on initial survival, percent ground cover one year after planting, width of spread one year after planting was recorded.



Weather during January, February, and March did not permit planting the material. The test has not yet been completed but there is very little difference in survival whether material was planted immediately or packaged and held in warehouse up to 24 hours. All material planted in October, November, and December 1969 had very poor survival.

3. Tests have been underway for 32 months to determine the best date and depth to plant five species of plants. One hundred seed were planted monthly at 0", 1/4", 1/2", 1", and 1 1/2" depths. The test is not yet complete, but information on each plant is given below:

a. Echinochloa holubii, Limpopograss, MS 924

Generally, germination at the 1/4" to 1/2" depth has been best. Survival has been rather constant at all depths of planting but is quite poor from plantings made between October and April.

b. Lespedeza virgata, Spreading lespedeza, MS 126

Germination has been better at the 0", 1/4" and 1/2" planting depths. Survival has been rather constant at all depths. Germination by months has been quite erratic.

c. Panicum virgatum, Pangburn switchgrass, MS 155

Germination has been best at the 1/4", 1/2" and 1" depths but has been variable. Survival at various depths of planting has likewise varied considerably.

d. Paspalum notatum, Wilmington bahiagrass, MS 131

Germination was best at the 1/2", 1" and 1 1/2" planting depths. Survival generally has been poor at all depths, especially at the 0" and 1/4" ones.



4. Two species of plants, Spartina patens, MS 2360, and Phalaris arundinacea, reed canarygrass, were planted vegetatively in rows grading from 6" above water to a 6" depth of water. This was done to determine whether a certain amount of wetness would increase seed production. Both plantings have been destroyed, since seed production along the entire row was very poor.
5. Eight accessions of fescue were planted in 5' x 20' blocks in October, 1967 on Grenada silt loam soil. These are being compared for ability to form sod and produce some summer growth. The eight are listed below, in order of most to least promising.

Festuca arundinacea:

<u>Variety</u>	<u>MS No.</u>
Ky 31	1601
Artrens	539
Goar	2656
Arflag	538
Alta	2659
Uruguay	2329
Fawn	2657
Kenwell	2659

6. Four accessions of Lespedeza japonica, MS Nos. 1643, 1850, 2503 and 2536, have been clipped twice annually for two years. This was done in an attempt to determine whether any of the four accessions (1) would spread and produce more stems and (2) could withstand a clipping regime. None of the four has shown much potential to date.
7. Four species of plants were planted in a stream channel near Coffeerville in 1966 to test their potential as streambank erosion control plants. All four have remained and have shown some merit for streambank erosion control but the maidencane is best at that particular location. Listed below are the plants and some general notes about each:



a. Echinochloa holubii, Limpopograss, MS 924

A good stand still persists and it is spreading, though not too fast (about a $2\frac{1}{2}$ ' spread). Silt is building up behind grass but washing is occurring between the grass and water.

b. Panicum hemitomon, Maidencane, MS 2138

A good stand persists and plants have spread to a 5'- 6' width. Sloughing soil, together with native plants, are coming in behind. This is the best looking plant on this particular site.

c. Salix hastata, Halberd willow, MS 863

A good stand still persists and silt has built up within it. Sloughing soil catches behind plants and native plants are coming in there.

d. Salix interior, Sandbar willow, MS 880

A good stand remains though it is not as dense as that of Halberd willow. Individual plants are taller than Halberd willows. Again, sloughing soil is being trapped behind plants and natives are invading the area.

8. Seven accessions of Paspalum distichum, knotgrass, and three accessions of Paspalum vaginatum, seashore paspalum, were planted in 5' x 20' plots in 1970. These plots are being kept moist. Plants will be evaluated for potential as streambank or reservoir levee erosion control plants. The following characteristics will be compared:

- a. Rate of spread
- b. Density of stand,
- c. Seed production; specifically, the amount which can be mechanically harvested,
- d. Disease and insect resistance

IV. FIELD EVALUATIONS

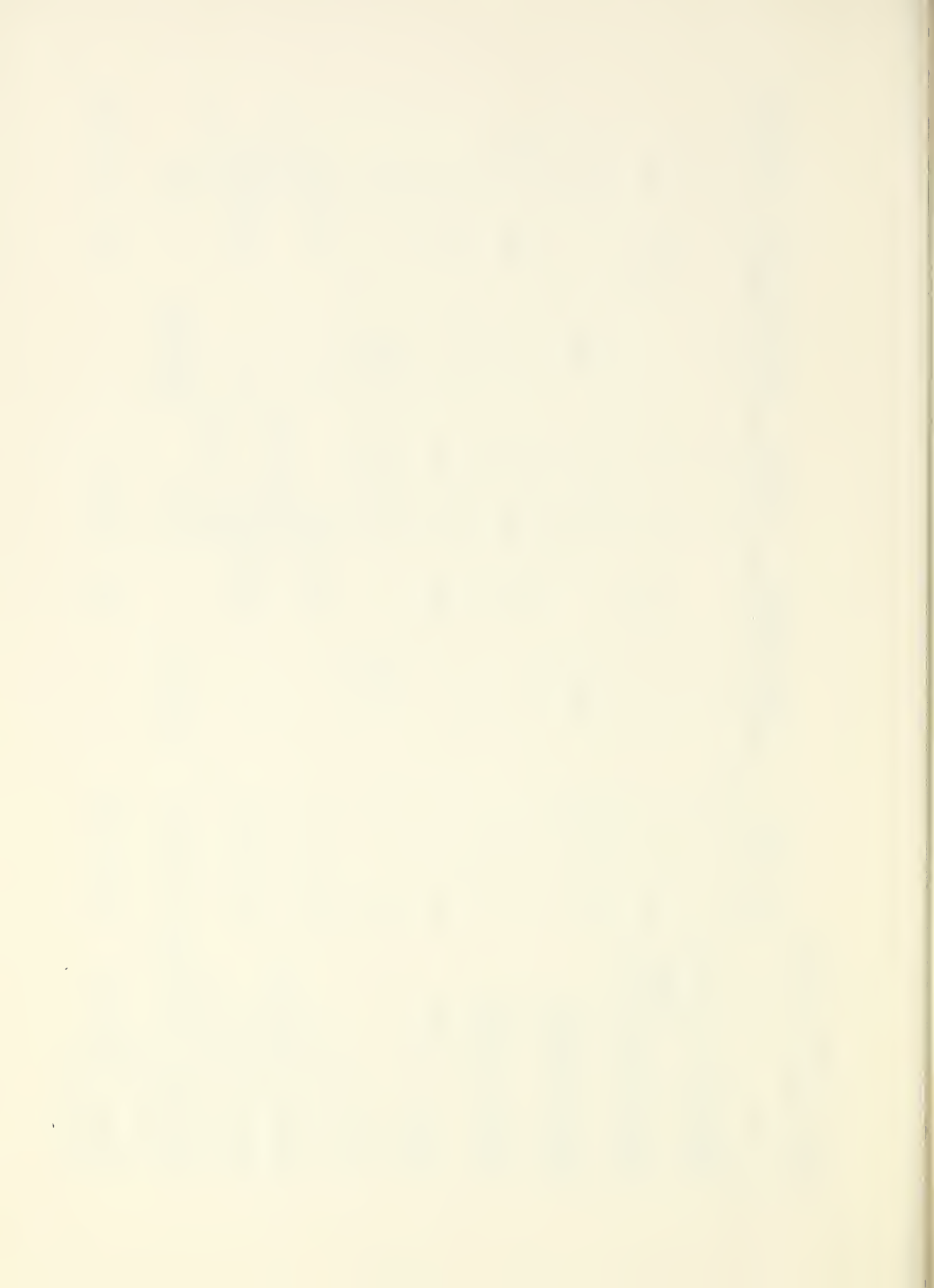
These evaluations will be covered under a report by T. A. Bown, Field Plant Materials Specialist for the States of Arkansas, Louisiana, and Mississippi.



ANNUAL TECHNICAL REPORT

Plant and Seed Increases

Species	MS NO.: Other	PI or No.:	Amount Planned Seed(lbs):Plants(ea)	Area in Production:Seed(lbs):Plants(ea)	Amount Harvested Seed(lbs):Plants(ea)	Purpose of Increase
<u>Agropyron obtusiusculum</u>	387	PI 261099	10	200' row	0	16, 19
<u>Wheatgrass</u>						
<u>Ampelopsis brevipedunculata</u>						
<u>Ampelopsis brevipedunculata</u>	2665	NC 67-14	2,500	600' row	5,570	22, 5
<u>Amur ampelopsis</u>						
<u>Arachis monticola</u>						
<u>Reseeding peanut</u>	528	PI 263393	500#	1/4 acre	95#	20, 12
<u>Castanea molissima</u>						
<u>Chinese chestnut</u>	24	R3 T21	300	134' row	360	12, 22
<u>Cercis canadensis</u>						
<u>Redbud</u>	3179		2,000	600' row	70	22
<u>Coreopsis sp.</u>						
	2378		8 oz.	1 rod row	Pkt	22
<u>Cynodon dactylon</u>						
<u>Tifdwarf bermudagrass</u>	2371	AM 1283	2,700	sq.ft.	378	sq.ft.
				5,000	sq.ft.	10, 11, 4
<u>Cynodon dactylon</u>						
<u>Tufcote bermudagrass</u>	2372	BN 4198	2,700	sq.ft.	6,750	sq.ft.
				5,000	sq.ft.	10, 11, 4
<u>Echinochloa frumentacea</u>						
<u>Chiwapa millet</u>	181	BN 8963	1,500	lbs	3,850	lbs.
				3	ac.	12
<u>Elaeagnus umbellata</u>						
<u>Autumn olive</u>	430	BN 11387	500	150' r.	88	3, 12, 22



ANNUAL TECHNICAL REPORT

Plant and Seed Increases

Species	MS NO.:Other	PI or No.:Seed(lbs):Plants(ea):Production:Seed(lbs):Plants(ea): Increase	Amount Planned No.:Seed(lbs):Plants(ea):	Area in Production:Seed(lbs):Plants(ea):	Amount Harvested Seed(lbs):Plants(ea):	Purpose of Increase
<u>Elaeagnus umbellata</u> Autumn olive	429 BN 11385		500	150' r.	6	3, 12, 22
<u>Elaeagnus umbellata</u> Autumn olive	432 BN 12090		2,000	900' r.	610	3, 12, 22
<u>Eragrostis curvula</u> Lovegrass	268 PI 234558	1,000		10 ac.	930	1, 2, 4, 6
<u>Leucaena retusa</u>	2954 PMT 1387		100	75' row	225	12
<u>Libocedrus decurrens</u>	3168		12	3' row	10	22
<u>Lonocera maackii</u> Amur honeysuckle	2161 BN 8318		3,000	650' row	650	12, 22
<u>Malus hupehensis</u> Crabapple	150 PI 122 586		5,000	900' row	8,850	12, 22
<u>Panicum virgatum</u> Switchgrass	17 F-686	2#		100' row	3 oz.	6, 16, 17
<u>Panicum virgatum</u> Switchgrass	18 F-687	2#		100' row	2 oz.	6, 16, 17
<u>Panicum virgatum</u> Pangburn switchgrass	155 BN 14668	300#		3 ac.	295#	6, 16, 17



ANNUAL TECHNICAL REPORT

Plant and Seed Increases

Species	MS No.	PI or Other Number	Amount Planned Seed (lbs.)	Area in Production	Amount Harvested Seed (lbs.)	Purpose of Increase
<u>Panicum texanum</u> Texas millet	358	F 639	400#	2 acres	600#	12
<u>Panicum hemitomom</u> Maidencane	2138	NC 64-4	115,000	1/2 acre	29,200	5, 7
<u>Paspalum notatum</u> Wilmington bahiagrass	131	AM 1284	4,000#	25 acres	1,025#	4, 18, 4
<u>Phyllostachys meyerii</u> Meyers bamboo	498	PI 116768	per req.	300 ft.	1,030	8, 11
<u>Phyllostachys bissetti</u> Bisset bamboo	499	PI 143540	" "	300 # row	1,000	8, 11
<u>Phyllostachys sp.</u> , Hardy bamboo	500	AM 315	" "	300# "	1,630	8, 11
<u>Pinus ponderosa</u> Ponderosa pine	3169		60	15' row		22
<u>Pinus ponderosa</u> Ponderosa pine	3170		25	5'	3	22
<u>Pinus sylvestris</u> Scotch pine	3142		100	24' row	0	22
<u>Pinus sylvestris</u> Scotch pine	3143		75	20' row	0	22
<u>Pinus sylvestris</u> Scotch pine	3144		75	20' row	0	22



ANNUAL TECHNICAL REPORT
Plant and Seed Increase

Species	MS PI or Other No.:Number	Amount Planned :Seed(lbs):Plants(ea)	Area in Production:Seed(lbs):Plants(ea)	Amount Harvested	Purpose of Increase
<u>Pinus sylvestris</u> Scotch pine	3145	100	25' row	12	22
<u>Pinus sylvestris</u> Scotch pine	3146	75	20' row	2	22
<u>Pistacia chinensis</u> Chinese pistache	2182 PI 21970	3,000	600' row	1600	22, 12
<u>Quercus acutissima</u> Sawtooth oak	3163	500	175' r.	450	22, 12
<u>Salix hastata</u> Halberd's willow	863 BN 13679	11,000	.2 ac.		Quarantined by State Plant Board because of Black Canker
<u>Salix interior</u> Sandbar willow	880 BN 13671	11,000	.2 ac		Quarantined by State Plant Board because of Black Canker
<u>Trifolium nigrescens</u> Ball clover	989 PI 206926	1,000#	5 ac.	600#	6, 4
<u>Trifolium vesiculosum</u> Meechee arrowleaf clover	329 PI 233782	2,500#	10 a c.	3,410#	19, 20



IV. CERTIFICATION AND RELEASE

Two plants have previously been released as new crops at the Coffeeville Plant Materials Center. These are Tri-folium vesiculosum, Meechee arrowleaf clover, and Echinochloa frumentacea, Chiwapa millet. Their release was a joint effort of the Center and the Mississippi Agricultural Experiment Station.

A field of Wilmington bahiagrass, Paspalum notatum, at the Center has been designated by the Mississippi Seed Improvement Association as a Foundation Seed field.

V. INFORMATION

a. New Articles

Several articles concerning the Coffeeville Plant Materials Center were written in local newspapers in 1970. An article written in a National magazine is listed as follows:

Williams, Hollis R., 1970. A Story Framed in Pines
American Forests 76(7): 21 - 23

b. Visitors

Five employees of the Soil Conservation Service from Oklahoma visited the Center on October 7, 1970.

The State Plant Materials Committee of Mississippi toured the Center on August 20, 1970. This was a part of the annual meeting of this Committee.

The Plant Materials Advisory Committee toured the Center on October 6, 1970. This committee was composed of SCS personnel from Arkansas, Louisiana, Mississippi, and Tennessee.



V. b. Visitors - continued

Many people visited the Center as individuals, or in small groups. Usually no pre-arranged plans had been made for these visits.

Mr. Hacker from the James E. 'Bud' Smith PMC, Knox City, Texas and Mr. Lovell from Americus PMC, Americus, Georgia visited the Center on April 24, 1970.

Dr. Marcus Eichhorn, with the Hill Farm Agricultural Experiment Station, Homer, Louisiana, and Mr. Alton Wilhite, SCS, Alexandria, Louisiana visited the Center May 5, 1970.

